

Genotype diversity of Newcastle disease virus in Nigeria: disease control challenges and future outlook

ABSTRACT

Newcastle disease (ND) is one of the most important avian diseases with considerable threat to the productivity of poultry all over the world. The disease is associated with severe respiratory, gastrointestinal, and neurological lesions in chicken leading to high mortality and several other production related losses. The aetiology of the disease is an avian paramyxovirus type-1 or Newcastle disease virus (NDV), whose isolates are serologically grouped into a single serotype but genetically classified into a total of 19 genotypes, owing to the continuous emergence and evolution of the virus. In Nigeria, molecular characterization of NDV is generally very scanty and majorly focuses on the amplification of the partial F gene for genotype assignment. However, with the introduction of the most objective NDV genotyping criteria which utilize complete fusion protein coding sequences in phylogenetic taxonomy, the enormous genetic diversity of the virus in Nigeria became very conspicuous. In this review, we examine the current ecological distribution of various NDV genotypes in Nigeria based on the available complete fusion protein nucleotide sequences (1662 bp) in the NCBI database. We then discuss the challenges of ND control as a result of the wide genetic distance between the currently circulating NDV isolates and the commonest vaccines used to combat the disease in the country. Finally, we suggest future directions in the war against the economically devastating ND in Nigeria.

Keyword: Newcastle disease virus; Disease control challenges; Avian diseases; Nigeria

